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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,930

12/16/2005

Heinz Futscher

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IP DEPARTMENT
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EXAMINER

AFZALI, SARANG

ART UNIT

PAPER NUMBER

3726

MAIL DATE

DELIVERY MODE

03/21/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,930	Applicant(s) FUTSCHER ET AL.	
	Examiner SARANG AFZALI	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed 7/13/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20100713</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/13/2010 has been entered.

Drawings

2. The drawings were received on 6/15/2010. These drawings are acceptable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. (US 6,465,121) in view of Kazutoshi et al. (JP 05275085 A).

As applied to claims 12, 13, 15 and 16, Dawson et al. teach a method for manufacturing an electrochemical cell (lithium battery) comprising:

applying a coating to a closed metal foil, the coating improving at least one of adhesiveness and electron conductivity;

converting the closed metal foil into expanded metal, thereby providing a current collector;

laminating the expanded metal with an anode foil;

applying a coating to an additional closed metal foil, the coating improving at least one of adhesiveness and electron conductivity;

converting the additional closed metal foil into expanded metal only after applying the coating, thereby providing an additional current collector;

laminating the expanded metal from the additional closed metal foil with a cathode foil;

providing a separator foil and laminating together the current collector with the anode foil, the separator foil and the current collector with the cathode foil (Figs. 3 & 4, col. 1, lines 17-25, paragraph bridging cols. 4 & 5, col. 5, lines 41-57).

Dawson et al. do not explicitly teach that the metal foil is expanded only after the coating is applied.

However, Kazutoshi et al. teach that it is well known in the art of battery making to apply a coating layer in form of a high conductivity thin film layer (Pb-Sn) or (Pb-Sn-Sb) on a metal sheet, followed by cold-rolling and subsequently expanded resulting in an enhanced integration of the coating layer onto the surface of the metal sheet (Abstract, Purpose/Constitution, Figs. 1 & 2).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have applied the coating layer of Dawson et al. followed by expanding it as taught by Kazutoshi et al., as an effective means of enhancing the adhesion and integration of the high conductivity coating layer onto the surface of the base metal without the chance of peeling off subsequent to the expansion.

Alternatively, although Dawson et al. do not teach that the metal foil is expanded only after the coating is applied, it is noted that there are a limited number of choices available to a person of ordinary skill in the art for coating a base metal, either before or after expansion.

As such, it would have been obvious to one of ordinary skill in the art, at the time of invention, to coat the base metal of Dawson et al. prior to being expanded in order to enhance the electron conductivity of the expanded metal, since coating the metal before the expansion is also a suitable means of improving electron conductivity of the metal maintained even after being expanded.

Regarding claim 12, the limitation of "collecting a current by use of said expanded metal as a current collector with one of an anode foil and a cathode foil," note that both Dawson et al. and Kazutoshi et al. teach a method of manufacturing a battery, and as such, teach that a coated, expanded metal is used as a current collector to collect current associated with one of an anode foil and a cathode foil (Dawson, col. 1, lines 44-46).

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5. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson et al. (US 6,465,121) in view of Kazutoshi et al. (JP 05275085 A) as applied to claims 12 and 15 above, and further in view of Kejha et al. (US 2006/0159999).

As applied to claims 14 and 17, Dawson et al./Kazutoshi et al. teach the invention cited with the exception of explicitly teaching the foil is prepared without using a plasticizing agent.

However, Kejha al. teach that it is well known in the art of battery making to provide non-plasticized structural body used as electrodes allowing them to be more loaded with active materials for high energy density (paragraph [0043], 12-18).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to have provided Dawson et al./Kazutoshi et al. with a non-plasticized electrode composition, as an effective means of enhancing the load capacity of the electrodes.

Response to Arguments

6. Applicant's arguments filed on 12/23/2009 have been fully considered but they are not fully persuasive. Regarding claims 12-17, Applicant's argument regarding applied art of Berger et al. for not explicitly teaching the step of coating prior to expanding is accepted and as such, the rejection of claims based on Berger et al. is withdrawn. However, Applicant's IDS filed on 7/13/2010 includes the prior art of Kazutoshi et al. (JP 05275085 A) which is used in the new rejection of claims 12-17.

Applicant's argument filed 12/23/2010 mainly states that Dawson et al. do not teach or suggest that the metal foil is expanded only after the coating is applied (Remarks, paragraph bridging pages 2-3) and furthermore argues that Applicant's own teaching should not be used as prior art and only after having the invention in mind, a person of ordinary skill in the art would conclude that the coating does not flake off during stretching, which would be quite unexpected and surprising (Remarks, page 3, lines 5-15).

The Examiner respectfully disagrees with the above arguments. Note that Dawson et al., at best, is silenced as the order in which the coating and expansion steps would occur. As such, there are only two viable options which means that the coating is either applied prior or subsequent to the expansion step. Kazutoshi et al. explicitly teach that a coating layer in a form of a thin film is applied by cold-rolling on the surface of the metal base and then it is expanded resulting in an enhanced bonding/adhesion without any flaking of the coating layer after the expansion. As such, contrary to the Applicant's assertion, a person of ordinary skill in the art already knew that the coating does not flake off during stretching in light of the teachings of Kazutoshi et al.

In response to applicant's argument that as if the examiner's conclusion of obviousness is based upon improper hindsight reasoning (by using Applicant's own teaching as a prior art), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the

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applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that the inventors of present invention have observed unexpected and surprising effect, it is noted that the features upon which applicant relies (i.e., service life of the punching knives increases during the manufacture of the expanded metal in many cases which might be due to the fact that usual adhesion promoters are suspensions containing graphite, which act as lubricants for knives during the punching operation and thus contribute to the prolongation of their service life (Remarks, page 3, 11-15) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARANG AFZALI whose telephone number is (571)272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SARANG AFZALI/
Examiner, Art Unit 3726
3/9/2011